

WHAT IS CLAIMED IS:

1. A method for sending a data item from a source to selected destinations of a plurality of destinations in a switching network, said method comprising:  
examining said data item to determine a routing identifier for said data item;  
using said routing identifier as an index, accessing a data structure comprising routing control values for said plurality of destinations; and  
concurrently transferring said data item from said source to said selected destinations based on said routing control values.
2. The method of claim 1 wherein said data structure comprises a table.
3. The method of claim 2 wherein said table comprises predetermined routing information.
4. The method of claim 1 wherein said data item comprises a portion of a frame.
5. The method of claim 1 wherein said routing control values is part of a mask.
6. The method of claim 1 wherein said source comprises an input queue.
7. The method of claim 1 wherein said switching network is part of a router.
8. A method for multicasting a frame in a router, said router comprising an input queue and a plurality of output queues, said method comprising:  
determining a destination identifier for said frame received by said input queue;  
using said destination identifier, locating a data structure comprising a mask for said plurality of output queues; and

concurrently transferring a reference to said frame to at least two selected output queue controllers in accordance with said mask.

9. The method of claim 8 further comprising:  
copying a word associated with said reference to said frame to selected out put queues of said plurality of output queues corresponding to said selected output queue controllers.

10. The method of claim 8 wherein said data structure comprises a table, said table comprising said mask.

11. The method of claim 10 wherein said destination identifier is an index into said table for selecting said mask.

12. The method of claim 8 wherein said frame is stored in a shared memory and is located by said reference to said frame.

13. The method of claim 8 wherein said reference to said frame includes a pointer to said frame.

14. A multicasting system in a switching fabric for routing data in a frame received at an input queue to a plurality of selected output queues, comprising:  
a table having a plurality of predetermined routes, said table addressed by a destination ID in said frame, and said table comprising a mask corresponding to said destination ID;

a memory for storing said mask, said mask indicating said plurality of selected output queues; and

selected output queue control modules for said plurality of selected output queues, said selected output queue control modules used for copying said data to said plurality of selected output queues.

15. The multicasting system of claim 14 further comprising :  
a start of frame pointer for addressing a memory area in a shared memory having said frame, wherein said start of frame pointer is concurrently copied to said selected output queue modules.

16. The multicasting system of claim 14 wherein said frame has a frame format comprising: a type, a destination ID, and data.

17. The multicasting system of claim 14 wherein said frame has a frame format comprising: a type, a route, and user defined control information.

18. The multicasting system of claim 14 wherein said frame has a frame format comprising: a type, a route, and data.

19. The multicasting system of claim 18 wherein said route includes a multicast flow ID.

20. The multicasting system of claim 18 wherein said route includes a unicast destination port ID.

21. The multicasting system of claim 18 wherein said memory for storing said mask includes a lockable row.

22. A system for multicasting a frame in a router having a plurality of input ports and a plurality of output ports, comprising:  
a first crossbar switch for transferring said frame from an input port of said plurality of input ports to a shared memory;  
a frame pointer for referencing said frame stored in said shared memory;  
a second crossbar switch for transferring said frame using said frame pointer to a plurality of selected output ports of said plurality of output ports; and  
a control unit for selecting said plurality of selected output ports using a multicast data structure having predetermined multicast routes.

23. The system of claim 22 wherein transferring said frame using said frame pointer to a plurality of selected output ports happens in parallel.

24. The system of claim 22 wherein said control unit comprises a lockable cache memory for storing a mask, said mask used in selecting said plurality of selected output ports.

25. A method for sending a frame from a source to selected destinations of a plurality of destinations in a router, said method comprising:  
means for examining said frame to determine a destination identifier for said frame;  
using said destination identifier as an index, means for accessing a data structure comprising a mask for said plurality of destinations; and  
means for concurrently transferring at least one portion of said frame from said source to said selected destinations based on said mask.